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EXAMINER

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ART UNIT

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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DETAILED ACTION

Response to Amendment

1. Applicant's amendments filed on 11/05/08 have been entered. Claims 1-3, 6 and 7 are cancelled, claims 13-17, 19-23 are withdrawn from consideration and entitled to rejoinder upon the allowance of the elected claims. Claims 4, 5, 8-12 and 18 are currently under examination on the merits.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 4, 5, 8-12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kushibiki et al. (EP 0 682 271) in view of Amano et al. (U.S. 5,672,672).

Regarding claims 4 and 5, Kushibiki et al. discloses an optical polysiloxane based resin which includes between 10 and 99.99%mol of an $\text{RSiO}_{3/2}$ constituent (which reads on instant composition (A) with the range of the prior art completely overlapping the instant range of constituent (c)) (See Abstract). In Reference example (C5, L5-30), the $\text{RSiO}_{3/2}$ constituent is $\text{PhSiO}_{3/2}$, which is an aromatic hydrocarbon group having 6 carbon atoms. A second component bearing 3 hydrolyzable substituents is disclosed as being present at between 0.01 and 40 mol%, (C2, L40-55) and in the reference example (C5, L5-30), $\text{ViMe}_2\text{SiO}_{1/2}$ is the constituent, which meets the description of a hydrosilation reactive diluent as described in paragraph [0043] of the instant specification. In addition to meeting the limitations for the hydrosilation reactive diluent, $\text{ViMe}_2\text{SiO}_{1/2}$, also meets the requirements for component (a). Components (b) and (d) are not disclosed as being present and therefore also read on the instant recited limitations (i.e. 0% is included in those ranges). In Example 1 (C5, L30-57), the composition of the reference example is further mixed with phenyltris(dimethylsiloxy)silane, which reads on composition (B) (See instant specification paragraph [0030]).

Kushibiki et al. does not specifically disclose the use of the polysiloxane based resin composition as being used with waveguides, even though its optical use is disclose (See Abstract).

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Amano et al. discloses a polysiloxane based resin composition which is used in a waveguide application (See Abstract, and Fig. 1 and 2). The use of a polysiloxane resin blend is disclosed as being particularly advantageous due to the ability to control the relative refractive indexes of the materials in core and clad parts of the waveguide through controlling the relative weight percentages of the constituents in the blend for each material (C22, L50-65). Controlling the aromatic group content in each blend is specifically disclosed as one such refractive index effecting factor (C19, L55-65). The polysiloxane blend of Kushibiki et al. would be a particularly good blend to use in the manner as taught by Amano et al. (i.e. controlling the refractive index of the blend to make core and clad components of a waveguide) because of its high mechanical strength and heat resistance (C1, L50-55) in addition to its resistance to environmental degradation (C4, L45-C5, L5).

The inventions of both Kushibiki et al. and Amano et al. are drawn to the field of optical polysiloxane resin compositions and therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have used the resin composition of Kushibiki et al. as a waveguide material as taught by Amano et al. for the purposes of imparting increase commercial applicability to the invention.

Regarding claims 8-12 and 18, modified Kushibiki et al. discloses all of the limitations as set forth above. Additionally, Amano et al. discloses a waveguide made from a polysiloxane resin composition in which the core and the clad structural components are made of the same general resin with different relative amounts of components (Example 2, C22, L20-C23, L25). Amano et al. also discloses that the controlling of the refractive index of the two structural

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components (core and clad) may be adjusted by, inter alia adjusting the amount of aromatic group containing polysiloxane components in the overall resin composition (C19, L40-65).

Furthermore, having knowledge that aromatic group containing polysiloxane compounds have a different index of refraction than non-aromatic containing polysiloxane compounds, one having ordinary skill would adjust the relative amounts of these materials in a blend in order to "fine-tune" and optimize the refractive index of the overall blend. The waveguide of Amano et al. is also a film type wave guide, (Fig. 1 and 2, and Example 2, C22, L20-C23, L25).

Response to Arguments

6. Applicant's arguments filed on 11/05/08 have not been found to be persuasive.

7. Regarding applicant's arguments that the combination of Kushibiki et al. with Asano et al. is improper, the examiner asserts that the combination is in fact proper. Applicant asserts that the composition of Kushibiki et al. would not have been obvious to use in the waveguide of Asano et al. because Asano et al. specifically points out the advantageous properties of his resin being related to low intermixing. The examiner confirms that the teaching of Asano et al. includes a resin exhibiting improved intermixing resistance over the general prior art; however, there is nothing in Asano et al. which teaches away from Kushibiki et al. Asano et al. was used as a general reference to show that it was known to use polysiloxane compositions in the field of waveguides by altering their refractive indexes for a core-clad arrangement (Asano et al., C1, L35-50). This cited portion in Asano et al. is all the disclosure needed for one having ordinary skill in the art to have found it obvious to have altered the refractive index of the composition of Kushibiki et al. to make an optical waveguide. The fact that the particular composition of Asano

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et al. is advantageous in its intermixing properties does not negate the disclosure in Asano et al. which clearly motivates the use of polysiloxanes in waveguides.

Specifically, applicant asserts that there is no indication in Kushibiki et al. which would lead one of ordinary skill to believe that its composition would have reduced intermixing properties; however, as has been shown above, such a disclosure in Kushibiki et al. is not necessary to maintain the combination. Regardless the examiner contends that the composition of Kushibiki et al. is in fact disclosed as having properties which would correlate to reduced intermixing. The resin of Kushibiki et al. is disclosed as being cross-linked via inter alia, isocyanate (C3, L15-40) which is later disclosed as resulting in certain beneficial characteristics including resistance to environmental degradation (C4, L45-C5, L5). The cross-linking and thermosetting of the composition of Kushibiki et al. would lead one having ordinary skill to believe that the composition would not intermix with other resins after it has been set (for the same reasons it would not degrade in environments). The examiner also wishes to point out that the benefit of mechanical strength is equally viable as a reason for combining and is also likely a result of the cross-linking.

Regarding applicant's arguments that Kushibiki et al. does not disclose core-cladding, the examiner notes that Asano et al. does teach such a structure and when combined with Kushibiki et al. reads on the instant claims. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Furthermore, the applicant argues that Kushibiki et al. discloses his composition for use with

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lenses, which while true, misrepresent the scope of Kushibiki et al. since it also discloses the general use of the composition with optical devices (See Abstract), which would include waveguides. The specific disclosure of lenses does not negate the general disclosure of optical devices.

Regarding applicant's arguments directed towards the cross-linking nature of Asano et al., both Asano et al. and Kushibiki et al. disclose isocyanate type cross-linking (Asano et al. C2, L40-55 and Kushibiki et al. C3, L15-40) and therefore one having ordinary skill in the art would see no problem is using the composition of Kushibiki et al. in a waveguide as taught by Asano et al. Moreover the similarity is moot since the disclosure of Asano et al. at (C1, L35-50) is adequate to motivate the specific use.

Regarding applicant's arguments that Asano et al. teaches away from Kushibiki et al. through the purported disparagement of polysiloxanes in general, there is no evidence that Asano et al. disparages the composition of Kushibiki et al. as being prone to intermixing. Kushibiki et al. actually discloses properties which would lead one having ordinary skill in the art to believe it lacks any purported deficiencies. More to the point, the improvements of the specific polysiloxanes of Asano et al. do not correlate to teaching away from general polysiloxanes, (only organosiloxanes which have problems with intermixing). Finally, the general teachings of Asano et al. at C1, L35-50 show that it was known to use polysiloxane compositions in waveguides as instantly claimed.

8. Regarding applicant's arguments directed towards a lack of disclosure in Kushibiki et al. of a diluent d2, the component $\text{ViMe}_2\text{SiO}_{1/2}$, in the reference example clearly discloses such a diluent based on the instant specification at [0043]. In addition to meeting the limitations for the

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hydrosilation reactive diluent, $\text{ViMe}_2\text{SiO}_{1/2}$, also meets the requirements for component A(a).

The reference example includes $\text{PhSiO}_{3/2}$ which reads on component A(c) and is mixed with example 1 and phenyltris(dimethylsiloxy)silane, which reads on component B. The fact that the $\text{ViMe}_2\text{SiO}_{1/2}$ is present in the polymer with $\text{PhSiO}_{3/2}$ does not prevent the disclosure from reading on the claims since there is no recitation that the diluent (d2) be separate from and not polymerized with component (A). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Even though a product-by-process is defined by the process steps by which the product is made, determination of patentability is based on the product itself. *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). As the court stated in *Thorpe*, 777 F.2d at 697, 227 USPQ at 966 (The patentability of a product does not depend on its method of production. *In re Pilkington*, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969). If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.). The fact that the end product of *Kushibiki et al.* reads on the instant product claims makes the claims obvious over the prior art regardless of the specific manner in which the product is produced.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL B. NELSON whose telephone number is (571) 270-3877. The examiner can normally be reached on Monday through Thursday 6AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MN/

11/24/08

/Callie E. Shosho/

Supervisory Patent Examiner, Art Unit 1794